

DOCKET NO: 294568US0PCT

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF :
TOSHIO ISOZAKI, ET AL. : EXAMINER: DARCY LACLAIR
SERIAL NO: 10/589,639 :
FILED: AUGUST 16, 2006 : GROUP ART UNIT: 1763
FOR: POLYCARBONATE RESIN :
COMPOSITION AND MOLDED ARTICLE
THEREOF

DECLARATION

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

Now comes Kenichi Mitsuhashi, who deposes and states as follows:

1. I am familiar with the above-identified U.S. patent application and its prosecution history, and understand that the main claim in this application, Claim 1, now reads as follows:

Claim 1: (Currently Amended) A polycarbonate resin composition comprising a resin mixture of component (A) comprising
(A-1) 10 to 62.5 mass% of an aromatic polycarbonate resin wherein dihydroxybiphenyl is used in an amount of 5 to 50 mol% with respect to the total amount of divalent phenol as a raw material in the formation of the aromatic polycarbonate resin and
(A-2) 90 to 37.5 mass% of an aromatic polycarbonate resin other than the aromatic polycarbonate resin of component (A-1), and
an amorphous styrene resin (B), in a mass ratio of component (A) to component (B) of 50:50 to 95:5,
wherein aromatic polycarbonate resin (A-2) is an aromatic polycarbonate resin containing polyorganosiloxane.

2. I am employed by Idemitsu Kosan Co., Ltd., the assignee of the above-identified U.S. patent application, and have worked at Idemitsu Kosan Co., Ltd. since 1990 in the area of polymer chemistry, especially polycarbonates.

3. Compositions were prepared and tested using the same (A-1) and (A-2) components as Example 3 of the above-identified U.S. patent application by me or under my supervision. The following Table describes these compositions as Comparative Examples A to C, which were evaluated in accordance with the procedures set out in above-identified U.S. patent application.

| Components admixed (parts by mass) | | | Example 3 | Comparative Example A | Comparative Example B | Comparative Example C |
|------------------------------------|--|-----------|-----------|-----------------------|-----------------------|-----------------------|
| (A) | PC-1 | | | | | |
| | PC-2 | (PC-PDMS) | 30(37.5) | 12.5(11.1) | | 80(100) |
| | PC-3 | (BP-PC) | 50(62.5) | 77.5(86.1) | 80(100) | |
| (B) | ABS-1 | | | | | |
| | ABS-2 | | 20 | 10 | 20 | 20 |
| | AS-1 | | | | | |
| | AS-2 | | | | | |
| (C) | Talc | | 10 | 10 | 10 | 10 |
| (G) | PTFE | | 0.5 | 0.5 | 0.5 | 0.5 |
| Evaluation | SFL (260°C, 2mm thick) (cm) | | 40 | 30 | 40 | 40 |
| | Izod impact strength (kJ/cm ²) | | 45 | 30 | 15 | 60 |
| | HDT (load; 1.83MPa) (°C) | | 125 | 125 | 125 | 123 |
| | Flexural strength (MPa) | | 96 | 97 | 97 | 94 |
| | Flexural modulus (MPa) | | 3500 | 3600 | 3600 | 3350 |
| | Flame retardance (UL94, 1.5mm thick) | | V-0 | V-1 | not V | V-1 |
| | LOI | | 42 | 33 | 31 | 36 |

In this data set Comparative Example A falls outside the scope of Claim 1 in view of the ratio of (A-1) to (A-2). Comparative Example B contains only (A-1) as component (A), and Comparative Example C contains only (A-2) as component (A) of the present application.

4. From the above Table, Example 3 has a flame retardance of V-0. On the contrary, none of Comparative Examples A, B and C achieve a flame retardance of V-0. Each of (A-1) and (A-2) by itself has a low flame retardance, but by combining (A-1) and (A-2) in the specifically claimed ratio excellent flame retardance is achieved. This effect is unexpected.

5. While not bound by theory, this effect is believed to possibly be due to the production of SiO_2 when burning an aromatic polycarbonate resin containing polyorganosiloxane, which can be incorporated into a charred layer formed at the surface of the resin and form a barrier layer having excellent flame retardance. At the same time, the charred layer would be stiffened by dihydroxybiphenyl. In this way, there is a synergistic effect on flame retardance when both components (A-1) and (A-2) are present as claimed.

6. The undersigned petitioner declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believe to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

Kenichi Mitsuhashi

Kenichi Mitsuhashi

Jun. 21, 2011

Date